

Patients' Perspectives of Surgical Safety: Do They Feel Safe?

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Background: Increased focus on reducing patient harm has led to surgical safety initiatives, including time-out, surgical safety checklists, and debriefings. The perception of the lay public of the surgical safety process is largely unknown.

Methods: A 20-question survey focused on perceptions of surgical safety practice was distributed to a random sample of patients following elective operations requiring hospitalization. Responses were measured by a 7-point Likert scale. Qualitative feedback was obtained through nonphysician-moderated sessions. Participation was voluntary and anonymous.

Results: Surveys were distributed to 345 patients of whom 102 (29.5%) responded. Overall, patients felt safe as evidenced by scores for the questions “I felt safe the day of my surgery” (6.53 ± 0.72) and “Mistakes rarely happen during surgery” (5.39 ± 1.51). Patients undergoing their first surgery and patients with higher income levels were associated with a significant decrease in specific safety perceptions. Qualitative feedback sessions identified the physician-patient relationship as the most important factor positively influencing patient safety perceptions.

Conclusion: Current surgical safety practice is perceived positively by our patients; however, patients still identify physician-patient interactions, relationships, and trust as the most positive factors influencing their perception of the safety environment.

Keywords: Care-patient, management-patient, patient safety, surgery

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INTRODUCTION

Since *To Err is Human: Building a Safer Health System* was published in 1999, eliminating patient harm has been an area of increased focus.¹ Surgical safety initiatives, including time-out, surgical safety checklists (SSCs), and debriefings, have been shown to reduce errors, improve outcomes, and increase quality of care metrics.²⁻⁴ SSCs also improve teamwork and communication, promoting a culture of patient safety.^{3,5-7} The development of effective SSCs was influenced by earlier work in the airline industry where checklists provided a robust tool to promote adherence to standard safety practices.⁸ While checklists are highly effective with the rigid interface of pilot and machine, adapting them to patient care processes adds another level of human complexity.^{9,10} Many of these processes require repetitious questioning of patients through different phases of care and if misinterpreted may be seen as a failure of communication or as provider incompetence, leading to dissatisfaction with the surgical experience.¹¹

The healthcare industry has increased its focus on patient satisfaction as a quality metric.¹²⁻¹⁶ The future direction for healthcare payments is to link these patient perception metrics to reimbursement.^{13,17} Additionally, public reporting of patient satisfaction may lead to bias in physician selection

by future patients.¹⁸ Many factors influence patient satisfaction, and perceptions of safety may have a prominent role.^{19,20} Rathert et al suggested that a patient's perception of safety is greatly influenced by the processes of care.²¹ While we search for means to increase patient satisfaction, we do not know patients' perceptions of surgical processes in current surgical safety practice. Therefore, patient safety perceptions in surgery need to be defined.

This study aimed to determine patient perceptions of surgical safety with an emphasis on surgical team interaction throughout the phases of care. To our knowledge, no previous reports on surgical safety initiatives from the patient's perspective have been published.

METHODS

In September 2010, our institution implemented the SSC adapted by the World Health Organization. Initially, we focused on surgical team perceptions and their impact on efficiency and outcomes.^{2,7,22} In an attempt to determine patient perceptions of current surgical safety practice at our institution, we implemented a prospective study using an anonymous survey and qualitative group feedback sessions focused on patient safety. Our institutional review board approved the study.

A search of the current medical literature revealed no previous validated survey in this area. Questionnaire development began with a multidisciplinary surgical team composed of surgeons, anesthesiologists, nurses, and an education research specialist who developed a 20-question survey focused on patient perceptions of surgical safety practice. Questions were designed to address patient experiences throughout the phases of care: in a surgery holding area, just prior to induction, and at the time of postoperative recovery. Questions addressed patient interactions with all team members, including nursing staff, surgeons, and anesthesia providers (Figure 1). The survey was circulated, reviewed, and revised by multiple leaders of the surgical, anesthesia, and nursing teams. Responses to the questions were tabulated in a 7-point Likert scale format with 1 representing strongly disagree and 7 representing strongly agree. Demographic information obtained included sex, race, first surgery or not, income, level of education, involvement in laterality, and if a surgical complication occurred. Inclusion criteria for respondents of the survey were patients ≥ 18 years undergoing any elective operation requiring hospitalization >24 hours. Surveys were hand delivered to patients during their hospitalization on postoperative day 1 during a 5-month period. An independent healthcare provider uninvolved in the patient's care obtained consents at the time of survey delivery. Responses were returned using a self-addressed, prepaid envelope. The results were recorded and deidentified. Patients provided contact information if they were interested in participating in the qualitative feedback sessions. Survey data were analyzed using logistic regression and means of parameter estimates for continuous variables and demographics. Survey responses are expressed as mean score with standard deviation. Statistical significance was set at $P < 0.05$.

Qualitative feedback was obtained through 4 separate nonphysician-moderated sessions. Participation was voluntary, and the identity of participants was anonymous. To aid in recruitment, participants were compensated with a gift card upon completion of the session. A nonphysician moderator led group discussions on patients' perceptions of safety during the perioperative period and hospital stay. Near the end of the session, patients received a short standardized lecture on established perioperative safety initiatives and were invited to voice their thoughts on these processes. Session content was transcribed and reviewed to determine common themes using iterative thematic qualitative analysis. Two investigators individually reviewed session transcripts, analyzing for common themes in the surgical experience that either positively or negatively impacted patients' sense of safety. The reviewers then agreed on the number of occurrences for each theme.

RESULTS

Surveys were distributed to 345 patients, and 102 (29.5%) responded. The demographics of the responders were similar to the overall hospital patient population demographics in terms of race, income level, and education level (Table 1). The majority of responders were female (62.7%), married (62.7%), of white race (77.5%), and had an annual household income level $< \$75,000$ (72.6%). Sixty-six percent of patients had laterality involved in their surgical procedure,

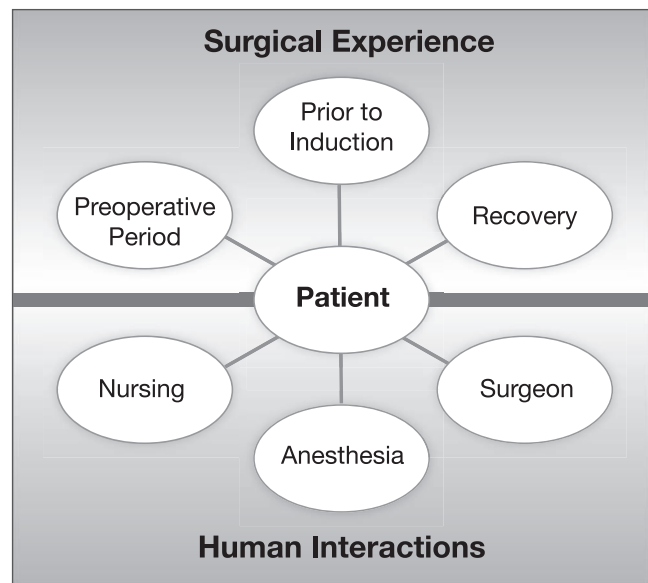


Figure 1. Survey focus areas.

and only 11.8% had undergone their first surgery. Thirteen percent of patients felt that their current procedure was necessary because of a prior complication.

Survey questions were grouped according to the phase of care or team member interaction (Table 2). Overall, patients' perception of surgical safety was high, as evidenced by mean scores between 6 (agree) and 7 (strongly agree) for questions 1-19 (Figure 2). Examples include "I felt safe the day of my surgery" (6.53 ± 0.72) and "On the day of the surgery, the surgical team's top priority was my safety" (6.51 ± 0.81). The lowest score in the survey was for question 20, "Mistakes rarely happen during surgery" (5.39 ± 1.51).

To determine whether patient demographics played a role in survey responses, each question was analyzed according to demographic subgroups. No differences in ratings dependent on sex, race, or education level were observed. Patients undergoing their first surgery were more likely to respond with a lower score to the statement, "On the day before the surgery, I felt confident about my safety" (6.03 vs 6.68 , $P=0.016$). Patients with higher income levels had a significant decrease in safety perceptions for 5 of the 20 questions (Table 3), with a stepwise decrease in responses as income increased.

Seventeen participants attended qualitative feedback sessions. The most common themes positively and negatively impacting the perception of patient safety are listed in Table 4. The surgeon's personal interaction with the patient, especially in the preoperative area, was the most important factor positively influencing patient safety perceptions. This impact is demonstrated by direct patient quotes: "It made me feel really safe when my doctor came in before my surgery, talked to me, and introduced himself to my family" and "...the doctors came in, explained what was going to happen, what I could expect, and that put me at ease."

Miscommunication on the surgical ward was the most common negative influence on patient perception of safety. One patient said, "...the surgical team was excellent, but

Table 1. Patient Demographics (n=102)

Variable	n	%
Sex		
Male	38	37.3
Female	64	62.7
Education level		
Less than high school	10	9.8
High school or GED	34	33.3
Some college	39	38.2
College graduate	15	14.7
Postgraduate school	4	3.9
Marital status		
Married	64	62.7
Living with a partner	6	5.9
Single	7	6.9
Divorced/Separated	19	18.6
Widowed	5	4.9
Race		
White	79	77.5
Black or African American	11	10.8
Other	8	7.8
Income level		
<\$25,000	32	31.4
\$25,001-\$50,000	22	21.6
\$50,001-\$75,000	20	19.6
\$75,001-\$100,000	11	10.8
\$100,001-\$125,000	2	2.0
\$125,001-\$150,000	3	2.9
>\$150,001	3	2.9
Laterality		
Yes	67	65.7
No	32	31.4
First surgery		
Yes	12	11.8
No	86	84.3
Surgery due to prior complication		
Yes	13	12.7
No	86	84.3

Some response totals are <102 because respondents left the answers blank.

my hospital stay once I got to my room, it just fell through the roof...it was like there was no communication.” The focus groups also identified a high burden of work for nurses and a feeling of abandonment after arriving at the surgical ward. Our hospital is exploring this area of opportunity for enhancing our patients’ sense of safety.

Table 2. Survey Questions According to Phase of Care/Team Interaction Subgroup**Preoperative Period**

7. On the day of the surgery, measures taken to ensure my safety were explained to me by someone.
12. On the day of the surgery, I felt safe because of the actions I saw taken by the surgical team.
13. On the day before the surgery, I felt confident about my safety.
16. On the day of surgery, I felt safe when I was asked several times by the surgical team to repeat my name.
17. On the day of surgery, I felt safe when I was asked several times by the surgical team to repeat my birthday.
18. I felt safe when I was asked by the surgical team about what kind of surgery was going to be performed that day.
19. I felt safe when I was asked by the surgical team about my allergies.

Recovery

14. During recovery, the surgical team was concerned for my safety.

Human Interactions

2. On the day of the surgery, all the members of the surgical team introduced themselves and their roles.
3. On the day of the surgery, the surgical team’s top priority was my safety.
4. I felt that my surgeon was concerned about the safety of my surgery.
5. I felt that the anesthesiologist was concerned about the safety of my surgery.
6. I felt that the nurses were concerned about the safety of my surgery.
8. On the day of surgery, I felt safe because of what the surgical team asked me.
11. The surgical team effectively communicated during my surgical experience.

Other

1. I felt safe the day of my surgery.
9. I understood what was involved in ensuring my safety for the surgery.
10. Safety was the most important aspect of my surgery.
15. I understood the risks associated with my surgery.
20. Mistakes rarely happen during surgery.

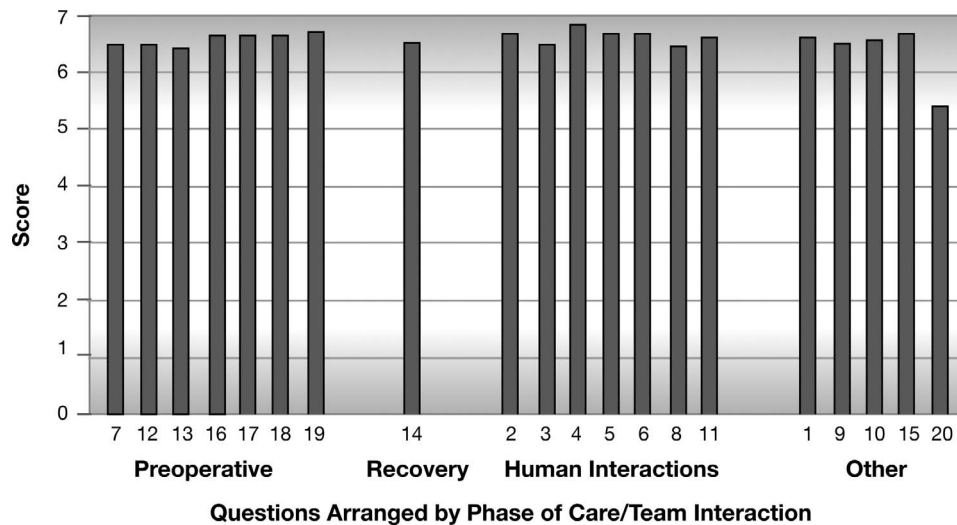


Figure 2. Mean survey responses by question. Responses were selected from a 7-point Likert scale in which 1 = strongly disagree and 7 = strongly agree.

DISCUSSION

At our institution, surgical patients have an overall high sense of safety, especially during the immediate operative period. Other institutions have similarly demonstrated that surgical patients report high levels of satisfaction with their care.²³⁻²⁵ Patients realize the priority that surgical safety has among the surgical team members but are generally unaware of the measures put in place to improve surgical safety, such as checklists. However, patients are not troubled by repetitive questioning of personal information and surgical procedure. The global high responses to the survey questions were surprising, as we anticipated that patients would be more critical of the healthcare system in the current economic and healthcare climate. Physician trust and patient communication had the greatest impact on patients’ perception of their safety and are not directly influenced by more modern patient safety initiatives.

Relatively few studies have addressed safety from the patient’s perspective, and we could find none specifically addressing surgical patients. During the 2000s, many advances in surgical safety have been implemented, and it is important to understand how our patients perceive these processes.^{15,19} Our study provides a baseline and a new insight into patients’ perception of healthcare.

Overall, our patients’ perception of safety was high. Interestingly, in our study we found that initial surgical experience and patient income were the only significant factors that negatively influenced patient response. These findings are not new. Evans et al similarly reported that patients with a higher income were more likely to feel unsafe in the hospital setting.²⁶ This inverse relationship between income level and perception of safety is interesting and deserves further explanation. Our data suggest that this finding is not a result of education, as the analysis for education levels showed no significant difference in safety perception within this group. Understanding the demographic-specific impact on patient perceptions will help providers and hospitals improve patient experiences in the future.

Patients value safety, and reports indicate that patients assume processes are in place to ensure their safety.^{27,28} The focus group arm of our study explored this theme further and found that the level of trust and communication had the greatest impact on patient safety perceptions. This finding is supported by Wolosin et al who showed that patients’ perceptions of safety are influenced by information sharing and that communicating safety practices to patients could bridge the gap between patients’ perceptions of safety and

Table 3. Negative Impact Associated with Increased Income

Question	Impact	Parameter	
		Estimate	P Value
7. On the day of the surgery, measures taken to ensure my safety were explained to me by someone.	Negative	0.13	0.044
8. On the day of surgery, I felt safe because of what the surgical team asked me.	Negative	0.16	0.017
9. I understood what was involved in ensuring my safety for the surgery.	Negative	0.13	0.023
10. Safety was the most important aspect of my surgery.	Negative	0.18	0.001
12. On the day of the surgery, I felt safe because of the actions I saw taken by the surgical team.	Negative	0.10	0.044

Table 4. Patient-Perceived Safety Themes

Theme	Occurrences
Improved Sense of Safety	
Physician trust	11
Physician explanations	10
Prayer and religion	7
Politeness and professionalism	6
Good communication	3
Education and research experience	3
Decreased Sense of Safety	
Miscommunication	6
Oversight	4
Lack of ownership	3
Lack of bedside manner and rushing	2
Long wait for surgery	2
Poor patient education	2

reality.²⁹ Indirectly, we stumbled across this concept in our focus groups in which we provided a standardized presentation about our institution's SSC. The presentation provided an overview of the conception, implementation, and performance of the checklist as patients experienced it during the process of surgical care and how it can improve patient safety. Our focus group facilitator found that most participants were unaware of the SSC and other safety initiatives during the processes of care, suggesting that implementation of a more visible or familiar process may result in greater patient participation and improve the experience and perception of patient safety. One such process could incorporate technology from our daily lives such as Quick Response codes. Our institution previously explored the concept of technologic aids in the operating room and found that these processes allow greater participation for the surgical team and patient.³⁰

Deficient areas defined by the patients are similar to areas that healthcare providers and hospitals have identified as needing improvement.³¹⁻³³ Factors contributing to patient safety incidents vary across hospital settings, as highlighted in a 2012 review.³⁴ Team factors and communication system failures were found to be the most common causes in the surgical setting. Scott et al showed that patients feel unsafe during transitions of care.³⁵ Our study reflects our patients' perception of this defect upon transfer to the ward units, and it has been identified as an area in need of quality improvement. The level of communication between patients, surgeons, and nurses influences how patients perceive the quality of their care.³⁶ Black et al found that surgical patients who reported better levels of communication and trust in their doctor were 30% less likely to report a complication.³⁷ Thus, improving how patients perceive the level of communication through all phases of care could have a significant impact on hospital quality metrics.

The limitations of our study include a low response rate and lack of a previously established and validated survey. Participation was anonymous and voluntary, with surveys

returned in prepaid envelopes. We had no way to control for participation rates and no method for contacting patients who did not respond to increase our response rate. However, the demographics of responders were similar to the overall institution's patient population, so our sample is considered to be representative of our institution as a whole. To overcome the lack of a validated survey, we involved a multidisciplinary team participating in all phases of care to develop and revise critical elements of safety during phases of care. All team members reviewed and agreed on the survey questions prior to implementation.

During our busy work lives, we must not lose sight of the importance of the humanistic bond within the physician-patient relationship.^{37,38} Patients with high levels of trust feel safer,³⁹ and further studies are needed to identify specific factors that affect their perceptions.

CONCLUSION

Our baseline survey established that patients have a high perception of safety within the current surgical setting. While using checklists and other tools improves adherence to the process of safety initiatives, clinicians must focus on what patients value in their perception of safety—a physician-patient relationship that fosters trust and communication.

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